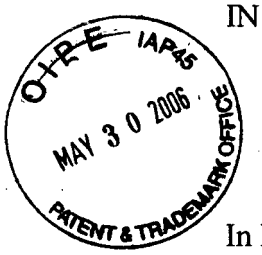
IFW



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group Art Unit: 2644
Examiner: Walter F. Briney, III
Confirmation No.: 8830

In Re PATENT APPLICATION Of:

Appellant:	Eiichi Nishimura	)
Serial No.:	09/963,499	)
Filed:	September 27, 2001	) REPLY TO) EXAMINER'S ANSWER
For:	ECHO CANCELER WITH AUTOMATIC GAIN CONTROL OF ECHO CANCELLATION SIGNAL	)
Attny Ref.:	MAE 266	)

May 30, 2006

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Appellant replies to the Answer mailed on April 5, 2006. No fee is due. However, please charge our Deposit Account No. 18-0002 if any fees are needed to enter this paper, and please advise us accordingly. It is noted that no petition is required because of the authorization to charge, but please consider this paper a petition for extension of time if needed. The honorable Board is requested to consider the following:

Magnitudes. In the Response to Arguments, the Examiner states that the Appellant's argument that "the regions [Lane's] fig. 2 represent specific ranges of a *ratio* of the transmit and receive signals, and not any magnitude of either one" but the Examiner asserts that "a minimum amount of transmit energy" is shown in Fig. 2.

The Examiner misconstrues Fig. 2. While each point in the regions represents two magnitudes and therefore represents one ratio, the regions (such as TALK REGION 40) are **defined** by the ratios, not by the magnitudes, and the magnitudes are not limited.

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Please charge any further fee to our Deposit Account No. 18-0002

The line T_T which the Examiner refers and which defines TALK REGION 40 extends right down to the origin, i.e. to the point (0,0). Therefore, region 40 includes **arbitrarily** small values of both E_T and E_R. For example, it will include the point (E_T=0.00005, E_R=0.00001).[1] It will also include the point (E_T=0.000000005, E_R=0.000000001).

The Examiner appears to be mathematically confused. The Examiner's argument, as best understood, is that (1) once one of the quantities E_T and E_R is fixed, then the other is also fixed in magnitude and (2) therefore the magnitude is limited. But the reference does *not* fix one of the quantities—only the Examiner is fixing one of them.

The Examiner does not mention Fig. 4 of Li, even though that figures *does* show a limit on the magnitudes of E_T and E_R—there, small values are excluded from the "SILENCE REGION" 46. But the Examiner is talking about Fig. 2 of Lane. The Examiner asserts that the SILENCE region is not germane to the rejection. However, it does show by counterexample that Lane discloses no magnitude limits, as noted above.

Probability. On page 9 the Examiner asserts that Lane does not use probability ratios but probabilities, and points to $T_{T'}$ in Fig. 4. Regardless of whether E_T and E_R are magnitudes, or probabilities of magnitudes, T_T and its probabilistic cousin $T_{T'}$ are both the same thing: straight lines from the origin indicating ratios. Mathematically, neither implies any magnitude limit. They only have different slopes, like T_T and T_R in Fig. 2.

Topology. The Appellant's Fig. 1 shows that the echo cancellation signal generator [14] and the signal level data generator [24] both receive the transmit input signal [TXi] from the microphone [4] and the receive signal [RXi] from the communication link. Claims 13 and 14 recite that these units operate according to these two signals. For example, claim 14 recites ... *echo cancellation signal generator ... updating the filter coefficients when the transmit signal* [TXi] *is less than a first minimum input level and the receive signal* [RXi] *exceeds a second minimum input level;*

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[1] The slope of the line T_T appears to be less than 5, therefore the Appellant assumes that magnitudes with a ratio of 5:1 will be in the region.

a signal level data generator generating signal level data ... when the transmit signal exceeds the first minimum input level [TXi(min)] *and the receive signal is less than the second minimum input level* [Rxi(min)].

However, none of the applied references show two portions of the circuitry each responding to both input signals.

In Horna, "RECEIVE IN" corresponds to RXi and "SEND IN" corresponds to TXi. "RECEIVE IN" goes **only** to the adaptive FIRF 14 while the AUTOMATIC GAIN CONTROL receives a signal **only** from "SEND IN." Clearly, the topology of Horna is different from that of the Appellant's claims.

In Lane (e.g., Figs. 3 and 6), there is no element that receives signals directly from the two inputs, even disregarding the two AGC's (which are inoperative at times). Neither of the AFIR filters receives **any** direct signal from an input (only input signals with signals reduced by signals from the other filter, out at the summing junctions 16, 32). Thus, the topology of Lane also shows that it fails to anticipate the instant claims, which recite two units acting on the level of the input signals and therefore being directly coupled to the two inputs, unlike Horna and Lane.

Furthermore, the references do not specifically show an echo cancellation signal generator or a signal level data generator coupled to the inputs. Lane discloses only AGC units coupled to either input, or (in the case of Fig. 6 or when the AGC's of Fig. 3 are inoperative) summing junctions coupled to either input. Horna discloses only an amplifier, an attenuator, or an AGC coupled to the inputs.

Fixed Coefficients. The Examiner's argument spanning pages 9-10 is believed incorrect. The filter will work with fixed coefficients, just as an oven will work at one fixed temperature or a radio will work on one station. The filter will work *differently* when the coefficients are changed.

Matched Attenuators. The Examiner states at page 4, line 2, that Horna provides matched attenuators whose outputs are combined in the summing junction 12. With respect, this is incorrect because the RECEIVE IN signal does not reach the

junction 12, only the output of the adaptive AFIR 14 reaches it,[2] and that output is "a prediction of the echo signal" (col. 4, line 7). That is, it is a prediction of what comes in at SEND IN on the *other* side. This is far removed from the RECEIVE IN signal itself.

Furthermore the attenuators, even if matched, are not connected to their amplifiers and AGC units in the same way (at SEND IN, the attenuator is downstream of the amplifier (the triangle) while at RECEIVE IN it is upstream), so their actions will differ and there is no matching as the Examiner asserts.

Motivation. With respect, the motivation for combining the references proposed by the Examiner on page 7 at line 13, namely "optimal settings in diverse environments" as cited by the Examiner (Lane col. 6, lines 8-25) does not actually motivate. Adaptation to the acoustic environment is the general object in this field, and the Examiner has presented no specific motivation.

The Examiner's other remarks in the Response are rebutted by the Appellant's remarks above, are not directly relevant to the issues, or are *prima facie* incorrect.

Respectfully submitted,

May 30, 2006
Date

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[2] The AFIR (col. 4, line 19) is mis-labeled as "FIRF" in the drawing.